

**Notice of Allowability**

Application No.

10/073,453

Examiner

Melissa M. Chojnacki

Applicant(s)

PHOHA ET AL.

Art Unit

2164

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/26/2006.
2. ☒ The allowed claim(s) is/are 1, 5, and 6-9 (Re-numbered in Allowance to Claims 1-6).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_



**CHARLES RONES**  
**SUPERVISORY PATENT EXAMINER**

**Remarks**

1. In response to communications filed on October 26, 2006, claims 2-4, 10-12 and 14-15 have been cancelled; claims 1, 5-9 and 13 have been amended, and no new claims have been added. Therefore, claims 1, 5-9 and 13 are presently pending in the application. In light of the Examiner's Amendment below and authorization of the Attorney of record, claim 13 has been cancelled.

**EXAMINER'S AMENDMENT**

2. The interlineations or cancellations made in the specification or amendments to the claims could lead to confusion and mistake during the issue and printing processes. Accordingly, the portion of the specification or claims as identified below is required to be rewritten before passing the case to issue. See 37 CFR 1.125 and MPEP § 608.01(q).

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ben Maroney on 2-November-2006.

The application has been amended as follows:

*Replace Claim 1 with the Following:*

1.(Currently Amended): In a system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of:

(a) providing a neural network having at least an input layer having  $J$  input nodes and an output layer having  $K$  output nodes, each of said output nodes associated with one of said computers, and associated weights  $w(j,k)$  between each said input node and each said output node;

(b) receiving a request for particular data set;

(c) inputting to said input layer an input vector having an entry  $R(I)$  at input node  $I$ , said entry  $R(I)$  being dependent upon a number of requests for said particular data set over a predetermined period of time; and

(d) selecting a computer associated with a selected one of said output nodes to service said particular data set, where said selected output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring a distance between said vector entry  $R(I)$  and said weights  $(j,k)$ , where  $j=I$ , associated with said input node  $I$  and said output nodes;

(e) updating said specific weight by modifying said specific weight with a first factor dependent said metric distance between said vector entry  $R(I)$  and said specific weight and a second factor dependent upon a means to balance a load across a subset of said output nodes; and

(f) transmitting said request for said particular data set to said selected computer.

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*Replace Claim 6 with the Following:*

6.(Currently Amended): In a system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of:

(a) providing a neural network having at least an input layer having J input nodes and an output layer having K output nodes, each of said output nodes associated with one of said computers, and associated weights  $w(j,k)$  between each said input node and each said output node;

(b) receiving a request for particular data set;

(c) inputting to said input layer an input vector having an entry  $R(I)$  at input node I, wherein said  $R(I)$  is proportional to a the ratio of a number of previous requests for said particular data set to a number of previous requests for a subset of all requested data sets, over said predetermined period of time;

(d) selecting a computer associated with a selected one of said output nodes to service said request for said particular data set, where said selected output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring the distance between said vector entry  $R(I)$  and said weights  $w(j,k)$ , where  $j=I$ , associated with said input node I and said output nodes; and

(e) updating said specific weight according to a predetermined general update rule;

$\Delta w_{jk}$  = neighborhood function + load balancing function; and

(f) transmitting said request for said particular data set to said selected computer.

*Replace Claim 7 with the Following:*

7.(Currently Amended): In a system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of:

(a) providing a neural network having at least an input layer having J input nodes and an output layer having K output nodes, each of said output nodes associated with one of said computers, and associated weights  $w(i,k)$  between each said input node and each said output node;

(b) receiving a request for particular data set;

(c) inputting to said input layer an input vector having an entry  $R(I)$  at input node I, said entry  $R(I)$  being dependent upon a number of requests for said particular data set over a predetermined period of time and

(d) selecting a computer associated with a selected one of said output nodes to service said data request, where said selected output node, is associated with a neighborhood of other output nodes and said output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring a distance between said vector entry  $R(I)$  and said weights  $(j,k)$ , where  $j=I$ , associated with said input node I and said output nodes; and

(e) updating said specific weight with a predetermined update rule, and said step of updating said specific weight includes updating each said weight  $w(j,k)$  in said neighborhood of said output node associated with said specific weight; and

(f) transmitting said request for said particular data set to said selected computer.

*Replace Claim 8 with the Following:*

8.(Currently Amended): In a system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of:

(a) providing a neural network having at least an input layer having J input nodes and an output layer having K output nodes, each of said output nodes associated with one of said computers, and associated weights  $W(j,k)$  between each said input node and each said output node;

(b) receiving a request for particular data set;

(c) inputting to said input layer an input vector having an entry  $R(I)$  at input node I, said entry  $R(I)$  being dependent upon a number of requests for said particular data set over a predetermined period of time and

(d) selecting a computer associated with a selected one of said output nodes to service said request for said particular data set, where said selected output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring a distance between said vector entry  $R(I)$  and said weights  $W(i,k)$ , where  $j=I$ , associated with said input node I and said output nodes;  
and

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(e) updating said specific weight according to the formula

$W(I,j)=W(I,j)+\alpha((R(I)-w(I,j)) + \beta(\sum W(i,k) - \gamma * W(I,j))$ , where alpha, beta and gamma are pre-determined constants; and

(f) transmitting said request for said particular data set to said selected computer.

Claim 13 is cancelled.

***Allowable Subject Matter***

4. Claims 1, 5-9 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The applicants' amendments and arguments filed on October 26, 2006 in the Amendment after Final, have been fully considered and are found persuasive.

The prior art of record Sullivan et al. (U.S. Patent No. 6,792,412), does not teach, disclose or suggest:

A system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of: (d) selecting a computer associated with a selected one of said output nodes to service said particular data set, where said selected output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring a distance between said vector entry  $R(I)$  and said weights  $(j,k)$ , where  $j=I$ , associated with said input node  $I$  and said output nodes; (e)

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updating said specific weight by modifying said specific weight with a first factor dependent said metric distance between said vector entry  $R(I)$  and said specific weight and a second factor dependent upon a means to balance a load across a subset of said output nodes; and (f) transmitting said request for said particular data set to said selected computer, as claimed in independent claim 1.

Claims 5 and 9 are allowed because they are dependent on independent claim 1.

A system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of: (c) inputting to said input layer an input vector having an entry  $R(I)$  at input node  $I$ , wherein said  $R(I)$  is proportional to a the ratio of a number of previous requests for said particular data set to a number of previous requests for a subset of all requested data sets, over said predetermined period of time; (d) selecting a computer associated with a selected one of said output nodes to service said request for said particular data set, where said selected output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring the distance between said vector entry  $R(I)$  and said weights  $(j,k)$ , where  $j=I$ , associated with said input node  $I$  and said output nodes; and (e) updating said specific weight according to a general update rule;  $\Delta w_{ik}$  = neighborhood function + load balancing function; and (f) transmitting said request for said particular data set to said selected computer, as claimed in independent claim 6.



A system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of: (c) inputting to said input layer an input vector having an entry  $R(I)$  at input node  $I$ , said entry  $R(I)$  being dependent upon a number of requests for said particular data set over a predetermined period of time and (d) selecting a computer associated with a selected one of said output nodes to service said data request, where said selected output node, is associated with a neighborhood of other output nodes and said output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring a distance between said vector entry  $R(I)$  and said weights  $(j,k)$ , where  $j=I$ , associated with said input node  $I$  and said output nodes; and (e) updating said specific weight with a predetermined update rule, and said step of updating said specific weight includes updating each said weight  $w(j,k)$  in said neighborhood of said output node associated with said specific weight; and (f) transmitting said request for said particular data set to said selected, as claimed in independent claim 7.

A system having a plurality of computers each having data sets stored thereon, a method of assigning a computer to service a request for a data set, said method comprising the steps of: (c) inputting to said input layer an input vector having an entry  $R(I)$  at input node  $I$ , said entry  $R(I)$  being dependent upon a number of requests for said particular data set over a predetermined period of time and (d) selecting a computer associated with a selected one of said output nodes to service said request for said

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particular data set, where said selected output node is associated with a specific weight, said specific weight selected to minimize a predetermined metric measuring a distance between said vector entry  $R(I)$  and said weights  $W(i,k)$ , where  $j=I$ , associated with said input node  $I$  and said output nodes; and (e) updating said specific weight according to the formula  $W(I,j)=W(I,j)+\alpha((R(I)-w(I,j)) + \beta(\sum W(i,k) - \gamma * W(I,j))$ , where  $\alpha$ ,  $\beta$  and  $\gamma$  are pre-determined constants; and (f) transmitting said request for said particular data set to said selected computer, as claimed in independent claim 8.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mellissa M. Chojnacki whose telephone number is (571) 272-4076. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 2, 2006  
Mmc



**CHARLES RONES**  
**SUPERVISORY PATENT EXAMINER**